Changing Delta Geometry and Ecology: The Effects of Historical Landscape Modification on Water Quality and Ecosystem Structure in Suisun Marsh and the Delta

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Public Comments

No public comments were received for this proposal.

Collaboration Panel Review

Proposal Title

#0067: Changing Delta Geometry and Ecology: The Effects of Historical Landscape Modification on Water Quality and Ecosystem Structure in Suisun Marsh and the Delta

Final Panel Rating
adequate

Collaboration Panel (Primary) Review

Collaboration:

Will the results of the collaborative effort be greater than the sum of its parts? Is it clear why the subprojects are part of a larger collaborative proposal rather than several independent smaller ones?

inadequate
No evidence is provided to explain how collaboration will occur. The GIS development will be done exclusively by SFEI staff and the hydrodynamics/water quality model work by DWR staff. It ius not apparent how collaboration will occur during the development proces or the report preparation. The only evidence of collaboration is through the annual TAG meetings and the quarterly team meetings.

Interdependence And Integration:

Does the proposal have an example that clearly articulates the conceptual model of each subproject and how they link together as a whole? Are the boundaries of the study plans focused and cohesive, yet well delineated? Is there a plan for potential differences in the stages of subproject completion times? Are there clear plans for analyses and interpretations which seek to identify and quantify relationships among the data collected in various subprojects rather than separate analyses for each subproject?

inadequate
No conceptual models are presented. A basic timeline/schedule is presented on page 31. Work on the project elements appears to be done independent of each other. The deliverable in

Project Element 2 is "GIS Analyses", but the term "GIS" is not included, or, even, vaguely referenced, in the discusstion text for this element (Pages 21–23). No evidence is presented of a linkage between project elements 2 and 3.

Project Management:

Is it clear who will be performing management tasks and administration of the project? Are there resources set aside for project management and time given for investigators to collaborate? Is there a process for making decisions during the course of the project? Are there acknowledgments of potential barriers to collaboration and explanations of how team members will overcome barriers particular to their institutions?

inadequate
The degree to which collabaoration will occur is unclear. The Task form identifies staff from both SFEI and DWR in some tasks, but no evidence is presented to explain how they will collaborate – the inclusion of those names may merely be an accounting of staff that will be performing that particular task but not nesessarily in a collaborative manner. There is no recognition of any barrier to progress nor how to overcome such barriers.

Team Composition:

Does the lead principal investigator have successful management history and experience leading collaborative teams? Is it clear that all key personnel are committed to making significant contributions to the project? Do team members have complementary skills?

adequate
There is minimal evidence that the Lead Investigator has the required experience in leading collaborative efforts. The Team members seem to have the necessary skills for their respective tasks. The funding levels in the Budget form supports the notion that the key personnel will be committed to making significant contributions.

Communication Of Results:

Is there a clear plan for comprehensive and cohesive reporting of project progress to the CALFED community?

adequate
Figure 6 (page 31) indicates there will be quarterly team meetings and monthly progress reports, but these are not discussed in Section III.D.(Analyses and Reporting, page 25) nor in the text in Section III.B where the work in project elements 1−3 is described. The text indicates there will be a website hosted by SFEI that will allow access to program materials and that results will be presented in the IEP Newsletter, the CALFED Science COnference and peer−reviewed technical journals. Tasks 5.1−5.3 in the Budget form provid ample funding to support the communication of results. It is unclear how the preparation of journal articles beyond the termination of the project would proceed in the absence of funding support.

Additional Comments:

Collaboration Panel (Discussion) Review

Primary reviewer noted that although there were multiple institutions involved, there was a lack of clear evidence of how the collaboration would occur between them. Under Integration / Interdependence, the term “GIS analyses” was a deliverable, but GIS was not discussed in project plans. No conceptual models were given. No discussion of collaboration throughout the duration of the project. The budget seemed adequate, but specifics are lacking. Inconsistent and inadequate discussion of collaboration. Within the teams there was independent work. Overall, primary reviewer rated it as Inadequate.

The secondary reviewer was less critical, and noted that there were developed tasks associated with project management and resources, that the proposal discussed timing and sequence of tasks, and the project manager has experience guiding joint project teams. Found the communication products to be standard; however, the applicants also outlined a plan to communicate to a larger audience and budgeted for

communication products. Secondary reviewer rated it Above average.

To average the differences, the final rating given was Adequate.

Technical Synthesis Panel Review

Proposal Title

#0067: Changing Delta Geometry and Ecology: The Effects of Historical Landscape Modification on Water Quality and Ecosystem Structure in Suisun Marsh and the Delta

Final Panel Rating
adequate

Technical Synthesis Panel (Primary) Review

TSP Primary Reviewer's Evaluation Summary And Rating:

The technical reviewers generally felt that the goals, objectives and hypotheses were clearly stated and timely. They also felt that the approach is reasonable, and the valuable information would be gained from the study; however, there was concern that the goals may be overly ambitious and unattainable, particularly considering the paucity of data that will make development of an appropriate historical-conditions model very difficult, at best. The authors appear to be well qualified to carry out the work, and the budget appears to be reasonable, although one reviewer expressed concern that it may be somewhat low.

Additional Comments:

The technical reviewers generally felt that the goals, objectives and hypotheses were clearly stated and timely. They also felt that the approach is reasonable, and the valuable information would be gained from the study; however, there was concern that the goals may be overly ambitious and unattainable, particularly considering the paucity of data that will make development of an appropriate historical-conditions model very difficult, at best. The

authors appear to be well qualified to carry out the work, and the budget appears to be reasonable, although one reviewer expressed concern that it may be somewhat low.

Technical Synthesis Panel (Discussion) Review

TSP Observations, Findings And Recommendations:

This proposal addresses important questions and would be conducted by a capable research team. However, the external technical reviewers and the panel had significant concerns regarding the likelihood that the proposed approach would be successful. These concerns were based, in part, on the potential inadequacy of the historical data to support the proposed modeling, and on technical difficulties that may arise in applying RMAZ/11 in the wetland and marsh environment. In addition, the historical conditions that are reconstructed will not necessarily represent the optimal conditions for the system, and this may not be appropriate for guiding future restoration actions.

Technical Review #1

proposal title: Changing Delta Geometry and Ecology: The Effects of Historical Landscape Modification on Water Quality and Ecosystem Structure in Suisun Marsh and the Delta

Review Form

Goals

Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the idea timely and important?

Comments	**The goal of this proposal is to develop a historical database of hydrography and ecology in the Suisun Marsh and Delta and to interpret this data to understand function changes due to development and to identify appropriate target endpoints for improvement. This project will understand the natural behavior of the Suisun Marsh through historical data. Based on an understanding of the natural processes in the Marsh and the influence of development, recommendations for reasonable improvements to closely match the natural behavior will be identified.**
Rating	**excellent**

Justification

Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full−scale implementation project justified?

Comments	**The work is well justified. No historical surveys or studies have been done, however, ample data resources have been identified. The work is also well structured so that the data obtained will be used to further scientific understanding of the effects of development**

	on hydrography and ecology. Moreover, the new insight will be used to identify important system changes to improve the health and uses of the Suisun Marsh.
Rating	very good

Approach

Is the approach well designed and appropriate for meeting the objectives of the project? Is the approach feasible? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology, or approaches? Will the information ultimately be useful to decision makers?

Comments	The approach is a highlight of this proposal. The research team is experienced and brings together diverse expertise needed to accomplish the goals of this project. The research approach is detailed, giving examples from other projects where the research methods were successful. The detailed steps of the approach are also fully appropriate given the goals of the project and well thought out. This project has a very high likelihood of success.
Rating	excellent

Feasibility

Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives and within the grasp of authors?

Comments	The approach is fully feasible. Data sources have been identified. Each section is guided by important hypotheses about function that guide the data collection. The study is guided by experienced personnel who will be successful in accomplishing each task.
Rating	excellent

Monitoring

If applicable, is monitoring appropriately designed (pre−post comparisons; treatment−control comparisons)? Are there plans to interpret monitoring data or otherwise develop information?

Comments	**No new monitoring is proposed. This project does an excellent job of collecting all available historic and current data on the Suisun Marsh and Delta to accomplish the goals.**
Rating	**very good**

Products

Are products of value likely from the project? Are contributions to larger data management systems relevant and considered? Are interpretive (or interpretable) outcomes likely from the project?

Comments	**There are many valuable products that will result from this project. The important products include the GIS documentation of the complete historical reconstruction of the pre−settlement landscape, a validated RMA 2/11 numerical model and GIS summary of the sensitivity analysis and comparison to historical data of the model, and GIS coverages of historical habitat and ecological functions. In addition, the project will make key scientific contributions regarding the effect of development on ecosystem form, function, and health.**
Rating	**excellent**

Additional Comments

Comments	**This project is clearly designed, well planned, important, and closely aligned with the CALFED goals. The project team is experienced and well−suited to accomplish the goals. The project budget is appropriate and the project goals are important. This project should be given high**

	priority for funding.

Capabilities

What is the track record of authors in terms of past performance? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

Comments	**As integrated in my review above, the project team is well-prepared to accomplish the project. They have experience in other locations doing similar research. The hypotheses are clearly defined and will significantly guide the investigation. This project has a high probability of success.**
Rating	**excellent**

Budget

Is the budget reasonable and adequate for the work proposed?

Comments	**Given the scope of the project and the expert personnel involved, the project budget is very economical. Because of the detailed research plan, each needed component for the project success has been identified; therefore, the budget is also adequate for the work proposed.**
Rating	**excellent**

Overall

Provide a brief explanation of your summary rating.

Comments	**This is a top-quality proposal that should be given high priority for funding.**
Rating	**excellent**

Technical Review #2

proposal title: Changing Delta Geometry and Ecology: The Effects of Historical Landscape Modification on Water Quality and Ecosystem Structure in Suisun Marsh and the Delta

Review Form

Goals

Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the idea timely and important?

Comments	**Are the goals, objectives …? Answer: The goals, objectives, and hypothesis are clearly stated, and are internally consistent. However, the proposal runs over 27 pages that exceeding the page limit. The reviewer did not carefully review the proposal beyond Page 18. (2.0/3.0).** **Is the idea timely and important? The idea is timely and important, but the goals seem too ambitious to achieve. The reviewer believes the proposal can only achieve some goals stated in the proposal (1.0/2.0).** **Rate: 3.0 (Good)**
Rating	**good**

Justification

Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full−scale implementation project justified?

Comments	**Is the study justified relative to existing ...? Answer: The project proposed to apply ARM2/11 model to reconstruct flow hydrodynamics and morphologic features of pre−history conditions, and compare with current conditions. ARM2/11 model has limited**

	capability in handling marsh wetland and estuarine channel network system. Especially, when using ARM2/11 to simulate pre-history condition, it will be difficult to define boundary conditions such as hydrograph, variation of sea level, and bottom roughness. The reviewer is concerned about the accuracy by using ARM2/11 model to reconstruct the pre-history conditions. Additionally, the recreated pre-historical land use information may not provide enough data for ARM2/11 model. (1.4/2.0) **Is a conceptual model …? Answer: The conceptual model is very clearly stated, but it needs to be concise to fit into the page limit. (1.0/2.0)** **Is the selection of research, pilot, or … Answer: The project is a demonstration research project, and the results and methodologies could be applicable to other similar marshes. (1.0/1.0) Rate:3.4. (Good)**
Rating	**good**

Approach

Is the approach well designed and appropriate for meeting the objectives of the project? Is the approach feasible? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology, or approaches? Will the information ultimately be useful to decision makers?

Comments	**Is the approach well designed and appropriate for meeting …? Is the approach feasible? Answer: The approaches are appropriate to achieve the desired objectives. The feasibility of the approaches is limited by the limitation of filed data for modeling input and verifications (1.0/2.0).** **Are results likely to add to the base of knowledge …? Is the project likely to …? Answer: The Methods and Product were presented from Page 18, which is out of the 15 page limit. The reviewer only glanced over these pages, and would like the proposal to be**

	shortened and re-submit. In fact, the project will analyze historical data and apply computational modeling tool to solve an interdisciplinary science question. Its innovation relies on how the disciplinary sciences are integrated (e.g. how geology and hydrology ultimately influence ecosystem?). This project may contribute to our base knowledge of interdisciplinary science (1.5/2.0). **Will the information ultimately be …? Answer: Definitely (1.0/1.0).** **Rate: 3.5. (Good)**
Rating	**good**

Feasibility

Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives and within the grasp of authors?

Comments	**Is the approach fully documented and technically …? Answer: The approaches were not very well documented within the page limit. (1.0/2.0).** **What's the likelihood of success? Answer: This project proposes to apply existing tools. The hydrodynamic modeling tool may require additional data input that can not be provided from pre-historical conditions. The likelihood of success is somehow questionable. (1.2/2.0)** **Is the scale of the project …? The scale of the project is in consistent with the objectives and within the grasp of authors (1.0/1.0) Rate: 3.2 (Good)**
Rating	**good**

Monitoring

If applicable, is monitoring appropriately designed (pre−post comparisons; treatment−control comparisons)? Are there plans to interpret monitoring data or otherwise develop information?

Comments	**Not available.**
Rating	**not applicable**

Products

Are products of value likely from the project? Are contributions to larger data management systems relevant and considered? Are interpretive (or interpretable) outcomes likely from the project?

Comments	**The Methods and Products session started at Page 18, which is beyond the page limit. The reviewer suggested the proposal to be shortened and resubmitted. Rate: 1.0/5.0 (Poor)**
Rating	**poor**

Additional Comments

Comments	**This proposal addressed a very important topics, and worth to be considered for funding. However, the length of proposal is significantly over the page limit. The reviewer would like to recommend shorten the proposal and resubmit.**

Capabilities

What is the track record of authors in terms of past performance? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

Comments	**The proposal team is qualified for the proposed project. The researchers have very diversified specialties and very well qualified for the proposed project. Rate: 5.0/5.0 (excellent)**

Rating	**excellent**

Budget

Is the budget reasonable and adequate for the work proposed?

Comments	**Reasonable. (4.0/5.0)**
Rating	**very good**

Overall

Provide a brief explanation of your summary rating.

Comments	**The reviewer gave each question under each category fixed points, for example, there are two questions under Goals, the first one worth 3.0 points, and the second one worth 2.0 points. If two questions are similar, the reviewer will group these two questions. The reviewer gave points to the proposal depending on how well the questions were answered in the proposal. If the questions were addressed perfectly for one category, the proposal will get 5.0 (excellent). Otherwise, fewer points will be assigned.** **Overall rating is depending on the summation of all points divided by seven, and the points were obtained from seven categories excluding the "not applicable" ones.** **The overall rating =(3.0+3.4+3.5+3.2+1.0+5.0+4.0)/7.0= 3.3** **5.0=Excellent; 4.0−5.0=Very Good; 3.0−4.0=Good; 2.0−3.0=Fair; 1.0−2.0=Poor.**
Rating	**good**

Technical Review #3

proposal title: Changing Delta Geometry and Ecology: The Effects of Historical Landscape Modification on Water Quality and Ecosystem Structure in Suisun Marsh and the Delta

Review Form

Goals

Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the idea timely and important?

Comments	**The goals are well articulated and quite aggressive. It is unclear if this study alone could sufficiently address all the goals or questions, but it is clear that signficant insight and progress would be made.** **Of particular note is the approach of using pre−European conditions as an analog for the 'ideal' state of the system. These types of reference studies can be very valuable, but are sometimes difficult to accomplish with the limited set of measurable, objective data available, and within the constraints of the often−critical unmeasurable (and therefore subjective) data that must be used to fill in critical gaps.**
Rating	**very good**

Justification

Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full−scale implementation project justified?

Comments	**The science is well grounded in both theory and literature. As a research study, it is clear that the authors have demonstrated sufficient capacity to implement the project, and to exted**

	its conclusions toward areas of management insight.
Rating	very good

Approach

Is the approach well designed and appropriate for meeting the objectives of the project? Is the approach feasible? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology, or approaches? Will the information ultimately be useful to decision makers?

Comments	The historical reconstruction approach builds on studies in similar landscapes around the US (e.g. Puget Sound, Florida, etc.), and uses well-developed aproaches that have been well accepted. There is often some inherent subjectivity associated with such approaches, but the authors have proposesd mehtods that will make such items completely transparent. While I'm not familiar with the specific hydrodynamic model that the authors have chosen, they demonstrate a thorough understanding of its value and limitations, and have proposed a set of questions that appear to be within the relm of realism.
Rating	very good

Feasibility

Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives and within the grasp of authors?

Comments	There are a number of hurdles that the study proponents must overcome, however, nothing that would prevent the successful completion of the study. It is clear that they will need to articulate clearly the assumptions that go into their model, and there is likely to be considerable discussion as to the implications

	of these assumptions on their conclusions.
Rating	very good

Monitoring

If applicable, is monitoring appropriately designed (pre−post comparisons; treatment−control comparisons)? Are there plans to interpret monitoring data or otherwise develop information?

Comments	
Rating	not applicable

Products

Are products of value likely from the project? Are contributions to larger data management systems relevant and considered? Are interpretive (or interpretable) outcomes likely from the project?

Comments	The deliverables are appropriate for the study, which will include reports, maps, GIS analyses and interpretations.
Rating	very good

Additional Comments

Comments	One concern I have is that one of the assumptions of the study is that historical conditions are adaquate references for the 'ideal' state of the system. It is my experience that such pre−European conditions are a snapshot in time that was controlled by a set of climatic, geomorphic, and biologic stressors that are often unknowable today. To extrapolate conclusions from the physical form alone can be problematic. This being said, I do strongly believe that understanding HOW the system is different from pre−European conditions is a critical first step in understanding how modern stressors affect system

	dynamics.

Capabilities

What is the track record of authors in terms of past performance? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

Comments	**The authors appear to have sufficient academic training and experience to accomplish this study. It appears to be a strong team with both the necessary breadth and depth to complete the project**
Rating	**excellent**

Budget

Is the budget reasonable and adequate for the work proposed?

Comments	**the budget appears a little aggressive from a cost perspective, however the key players have fairly low billing rates and low overhead. Therefore it appears that sufficient time resources are allocated to the project.**
Rating	**good**

Overall

Provide a brief explanation of your summary rating.

Comments	**Overall, I believe this study proposal is very good, and I highly recommend funding this study. It will integrate a multi-discplinary approach that will address no only the physical function of the marsh environment, but also its biological, geomorphic and ecological implications. I believe the insight from this study will be very valuable and highly regarded, and should lead toward improvements in understanding of the affects of management.**
Rating	

	very good